

SAIC0003C3-C  
Serial No.: 10/691,593

PATENT

AMENDMENTS TO THE CLAIMS

38. ~ 49. (Cancelled)

50. (Currently Amended) A slanted reflection hologram made by producing an interference pattern inside a polymer-dispersed liquid crystal material, the polymer-dispersed liquid crystal material comprising, before exposure:

- (a) a polymerizable monomer;
- (b) a liquid crystal;
- (c) a cross-linking monomer;
- (d) a coinitiator; and
- (e) a photoinitiator dye;

wherein the hologram has first and second plates and a plurality of alternating planes of polymer channels having a first refractive index and planes of polymer-dispersed liquid crystal channels having a second refractive index forming a grating therebetween having a front surface and a grating vector, wherein a direction of the grating vector is not perpendicular to the front surface of the grating and further wherein in a first state where no electric field is applied to the grating via a switching means, a symmetry axis of the liquid crystal is oriented along the grating vector and in a second state where an electric field is applied to the grating via a switching means, the symmetry axis of the liquid crystal is perpendicular to the front surface of the grating.

51. (Originally Presented) The slanted reflection hologram of 50, wherein the polymerizable monomer comprises dipentarythritol hydroxypentaacrylate.

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52. (Originally Presented) The slanted reflection hologram of claim 50, wherein the polymer-dispersed liquid crystal material further comprises, before exposure, a surfactant.

53. (Originally Presented) The slanted reflection hologram of claim 50, wherein:

- (a) the liquid crystal comprises 10-40% by total weight of the polymer-dispersed liquid crystal material;
- (b) the cross-linking monomer comprises 5-15% by total weight of the polymer-dispersed liquid crystal material;
- (c) the amount of coinitiator is  $10^{-3}$  to  $10^{-4}$  gram moles; and
- (d) the amount of photoinitiator dye is  $10^{-5}$  to  $10^{-6}$  gram moles.

54. (Originally Presented) The slanted reflection hologram of claim 50, wherein:

- (a) the liquid crystal comprises 10-40% by total weight of the polymer-dispersed liquid crystal material;
- (b) the cross-linking monomer comprises 10-18% by total weight of the polymer-dispersed liquid crystal material;
- (c) the coinitiator comprises 2-3% by total weight of the polymer-dispersed liquid crystal material; and
- (d) the photoinitiator dye comprises 0.2-0.4% by total weight of the polymer-dispersed liquid crystal material.

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55. (Currently Amended) The slanted reflection hologram of claim 5052, wherein the surfactant comprises about 6% by total weight of the polymer-dispersed liquid crystal material.

56. (Currently Amended) The slanted reflection hologram of claim 5052, wherein the surfactant comprises about 5-10% total weight of the polymer-dispersed liquid crystal material.

57. (Originally Presented) The slanted reflection hologram of claim 50, wherein the liquid crystal includes a mixture of cyano biphenyls.

58. (Originally Presented) The slanted reflection hologram of claim 50, wherein the cross linking monomer comprises N-vinylpyrrolidone.

59. (Originally Presented) The slanted reflection hologram of claim 50, wherein the coinitiator comprises N-phenylglycine.

60. (Originally Presented) The slanted reflection hologram of claim 50, wherein the photoinitiator dye comprises rose bengal ester.

61. (Currently Amended) The slanted reflection hologram of claim 5052, wherein the surfactant comprises octanoic acid.